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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/537,095	03/29/2000	Leroy A. Bartolomei	DSI-B-510	6812

7590 04/14/2006

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EXAMINER

MCDONALD, RODNEY GLENN

ART UNIT	PAPER NUMBER
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1753

DATE MAILED: 04/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 09/537,095	Applicant(s) BARTOLOMEI ET AL.	
	Examiner Rodney G. McDonald	Art Unit 1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11, 13-16, 30-39 and 46-65 is/are pending in the application.
- 4a) Of the above claim(s) 49-61 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11, 13-16, 30-39, 46-48 and 62-65 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 28, 2006 has been entered.

Claim Rejections - 35 USC § 112

Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is indefinite because the phrase "the step of coating may occur before the step of sealing" is unclear because it is unclear if the coating is occurring after sealing.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

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the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 8, 11, 30, 31, 32, 34, 35 and 62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parham et al. (U.S. Pat. 4,949,005) in view of Parham et al. (U.S. Pat. 5,536,991) and Hoegler et al. (U.S. Pat. 4,959,585).

Regarding claim 1, Parham et al. '005 teach forming a lamp according to their invention. (Column 4 lines 26-27) Parham teach forming a thin film optical interference filter 20 on the outer surface of the lamp. The coating 20 consists of alternating layers of tantalum and silica. The layers are formed by CVD or LPCVD. (Column 3 lines 49-51; Column 4 lines 49-53) The films are produced on quartz substrates including quartz tubing that produces the lamps. The films were formed prior to lamp fabrication on the tubing. (Column 3 lines 30-34) To form the lamp the lamp is hermetically sealed to finish the production of the lamp with a filament. (Column 4 lines 36-51)

Regarding claim 8, Parham et al. '005 teach the lamp substrate is a vitreous light transmissive material such as quartz. (Column 4 lines 33-36)

Regarding claim 11, Parham et al. '005 as discussed above teach that prior to lamp formation a quartz tube is coated on the outer surface of the lamp. The quartz tube is finished into a lamp by positioning a filament and electrical leads. The

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electrically leads are mechanically attached through welding and the lamp is hermetically sealed. (See Parham et al. discussed above; Column 4 lines 3-51)

Regarding claim 30, Parham et al. '005 as discussed above teach that prior to lamp formation a quartz tube is coated on the outer surface of the lamp. (See Parham et al. discussed above) After forming the coating the lamp is thermally treated by heating to a critical temperature range of within about 550-675 degrees C. (Column 6 lines 13-16)

Regarding claim 31, Parham et al. '005 teach that the temperature range of 550-675 degrees which is about 400 degrees C. (Column 6 line 17)

Regarding claim 32, the temperature of range of 550-675 degrees C is about 600 degrees C. (Column 6 line 17)

Regarding claim 34, Parham et al. teach that after film formation heating the substrates up to a temperature of 550-675 degrees C for 1-5 hours followed by heating to 800 degrees C for 0.1-5 hours. (Parham et al. Column 6 lines 46-49)

Regarding claim 35, the raising of the baking temperature is repeated at least once. (Parham et al. Column 6 lines 46-49; Column 6 lines 48-55)

The differences between Parham et al. '005 and the present claims is that protecting the coating from the sealing and utilizing a bulbous elliptical bulb is not discussed.

Regarding the protecting, Parham et al. '991 teach that a protective silica coating will protect underlying layers from high temperatures. (See Abstract; Column 1 lines 54-56)

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Regarding the bulbous elliptical bulb, Hoegler et al. teach that a coated lamp can have a bulbous elliptical lamp. (See Fig. 2)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Parham et al. '005 by utilizing a protecting coat as taught by Parham et al. '991 and to have utilized a bulbous elliptical bulb as taught by Hoegler et al. because it allows for protecting the underlying coatings from heat.

Claims 2-4 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parham '005 in view Parham et al. '991 and Hoegler of as applied to claims 1 and 30 above, and further in view of Martin, Jr. et al. (U.S. Pat. 4,663,557).

The differences not yet discussed is baking the envelope in an oxygen containing atmosphere is not discussed (Claim 2), the baking temperature being greater than 400 degrees C is not discussed (Claim 3), the baking at a first temperature and then at a second temperature higher than the first temperature is not discussed (Claim 4), the temperature being greater than 1200 degrees C is not discussed (Claim 33).

Regarding claim 2, Parham et al. '005 teach that the films are deposited on the quartz tubing prior to lamp fabrication. (Parham et al. '005 Column 3 lines 30-34) After the films are deposited the quartz tubing substrate can be heat treated. (Parham et al. '005 Column 2 lines 50-51) Martin, Jr. et al. suggest a forming a multilayer stack of silicon dioxide and tantalum pentoxide on a lamp and then baking the coated substrate in air at a temperature of at least about 1100 degrees C. (Martin et al. Column 3 lines 14-20)

The motivation for backing the coated lamp in air is that it allows for transforming the coating into a substantially visible light scattering, infrared reflecting filter. (Martin et al. Column 8 lines 35-40)

Regarding claim 3, Parham et al. '005 teach baking after forming the interference filter film at a temperature range of about 550-675 degrees C. (Parham et al. Column 6 lines 13-17) Martin, Jr et al. also teach baking at at least about 1100 degrees C. (Martin, Jr. et al. Column 3 lines 19-20)

The motivation baking the film after formation is that it allows preventing peeling of the film. (Parham et al.'005 Column 6 lines 52-53)

Regarding claim 4, Parham et al. '005 teach that after film formation heating the substrates up to a temperature of 550-675 degrees C for 1-5 hours followed by heating to 800 degrees C for 0.1-5 hours. (Parham et al. '005 Column 6 lines 46-49)

The motivation for performing two steps of heating at different temperatures is that it prevents peeling of the film. (Parham et al. '005 Column 6 lines 52-53)

Regarding claim 33, Martin et al. suggest baking at a temperature of at least about 1100 degrees C. (Martin et al. Column 3 lines 19-20)

The motivation for baking at a temperature of at least about 1100 degrees C is that it allows for transforming the coating into a substantially visible light scattering, infrared reflecting filter. (Martin et al. Column 8 lines 35-40)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have baked the envelope in an oxygen containing atmosphere, baked at a temperature being greater than 400 degrees C, baked at a first

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temperature and then at a second temperature higher than the first temperature and baked at a temperature being greater than 1200 degrees C as taught by Parham et al. and Martin Jr. et al. because it allows for transforming the coating into a substantially visible light scattering, infrared reflecting filter and for preventing peeling of the film.

Claims 5, 13, 14, 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parham '005 in view Parham et al. '991 and Hoegler et al. of as applied to claim 1 above, and further in view of Fridich et al. (U.S. Pat. 3,462,209).

Parham et al. in view of DeCaro et al. is discussed above and all is as applies above. (See Parham et al. discussed above) Parham et al. suggest coating the lamp quartz substrate prior to formation of the lamp and after lamp fabrication. (Parham et al. Column 3 lines 30-34)

The differences between Parham et al. and the present claims is that baking the coated lamp in an oxygen free atmosphere is not discussed (Claims 5, 12, 13, 14), the steps of baking at a first temperature then at a second temperature greater than the first temperature is not discussed (Claim 15) and wherein the step of raising the baking temperature and baking the lamp for a period of time is repeated one or more times (Claim 16).

Regarding claim 5, teach that the heat treatment may be carried out in-situ in the deposition chamber after the film has been formed. (Column 6 lines 41-43) Given that the deposition chamber is evacuated and only reagents to form the film are present this is considered to be an oxygen free atmosphere. (Column 5 lines 29-42)

The motivation for carrying out baking in an oxygen free atmosphere is that it allows for preventing peeling of the film from the substrate. (Parham et al. Column 6 lines 52-53)

Regarding claims 13 and 14, Parham et al. teach coating after the formation of the lamp. (See Parham et al. Column 3 lines 30-34) The lamp is formed by hermetic sealing. (Parham et al. Column 4 lines 35-51) The coating must be heated to avoid catastrophic stresses induced by the crystallization of the orthorhombic tantalum pentoxide crystals. (Parham et al. Column 3 lines 16-21) The heat treatment may be carried out in-situ in the deposition chamber after the film has been formed. (Parham et al. Column 6 lines 41-43) Given that the deposition chamber is evacuated and only reagents to form the film are present this is considered to be an oxygen free atmosphere. (Parham et al. Column 5 lines 29-42) Furthermore, Fridrich teach that the baking operation should be carried out in an inert atmosphere, as in a conventional type nitrogen furnace for example, in order to prevent the oxidation and burning out of these exposed outer end portions of the lead-in conductors of a lamp. (Fridrich Column 7 lines 15-23)

The motivation for carrying out baking in an oxygen atmosphere is that it allows preventing oxidation of the exposed outer end portions of the lead-in conductors of the lamp. (Fridrich Column 7 lines 15-23)

Regarding claim 15, Parham et al. teach that after film formation heating the substrates up to a temperature of 550-675 degrees C for 1-5 hours followed by heating to 800 degrees C for 0.1-5 hours. (Parham et al. Column 6 lines 46-49)

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Regarding claim 16, the raising of the baking temperature is repeated at least once. (Parham et al. Column 6 lines 46-49; Column 6 lines 48-55)

The motivation for heating in two steps and repeating is that it allows for preventing peeling of the film from the substrate. (Parham et al. Column 6 lines 52-53)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have baked the coated lamp in an oxygen free atmosphere, baked at a first temperature then at a second temperature greater than the first temperature and raising the baking temperature and baking the lamp for a period of time is repeated one or more times as taught by Parham et al. and Fridrich et al. because it allows for preventing oxidation of the lead in conductors and preventing peeling of the film.

Claims 6 and 37-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parham et al. '005 in view Parham et al. '991 and Hoegler as applied to claim 1 above, and further in view of Aedesse et al. (U.S. Pat. 3,466,489) and Gobel et al. (U.S. Pat. 5,276,763).

Parham et al. in view of DeCaro et al. is discussed above and all is as applies above. (see Parham et al. discussed above)

The difference between Parham et al. in view of DeCaro et al. and the present claims is that preventing coated portions of the lamp to temperatures above a certain temperature that are used for sealing.

Regarding claims 6 and 37-39, Audesse et al. teach sealing a quartz envelope by heating the open end of the envelope to the softening point of quartz, about 1500 to

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2000 degrees C and mechanically squeezing to form a hermetically tight press seal. (Column 3 lines 21-24) Gobel et al. teach that to improve the thermal stability of a reflective coating on a lamp substrate a protective coating of zirconium oxide can be used. (See Abstract)

The motivation for utilizing a protective coating of zirconium oxide is that it allows for improving the thermal stability of the lamp. (See Abstract)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have utilized a protective coating of zirconium oxide as taught by Gobel et al. because it allows improvement in thermal stability of the lamp since the process of sealing a quartz tube requires high heat as shown by Audesse et al.

Claim 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parham et al. '005 in view of Parham et al. '991 and Hoegler and further in view of Aedesse et al. and Gobel et al. as applied to claims 1, 6, 37-39 above, and further in view of Fridrich (U.S. Pat. 3,462,209).

The difference not yet discussed is the double ended lamp burner.

Fridich et al. teach in Fig. 3 sealing the double ended lamp. (Column 5 line 64; Fig. 3)

The motivation for sealing a double ended lamp is that it allows for production of incandescent lamps. (Column 1 line 73)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have sealed a double ended lamp as taught by Fridrich because it allows for production of incandescent lamps.

Claims 7 and 63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parham et al. '005 in view of Parham et al. '991 and Hoegler as applied to claim 1 above, and further in view of Hollenbeck et al. (U.S. Pat. 3,295,909).

The difference not yet discussed is aligning the filament.

Hollenbeck '909 teach aligning a filament in a lamp by measuring the relative intensity of the generating electric field. (Column 3 lines 28-37; Column 4 lines 70-75) Since the measurement of the electric field is directly related to power this is believed to be equivalent measuring of power.

The motivation for aligning the filament is that it allows for aligning the filament with respect to a reference point. (Column 1 lines 51-59)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Parham et al. by aligning the filament as taught by Hollenbeck '909 because it allows for aligning the filament with respect to a reference point.

Claims 1 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parham et al. '005 in view of Parham et al. '991 and Hoegler and further in view DeCaro et al. (U.S. Pat. 3,295,909).

Parham et al. is discussed above and all is as applies above. (See Parham et al. discussed above)

The differences between Parham et al. and the present claims is the masking to coat a portion of the lamp is not discussed.

DeCaro et al. teach masking to coat selected portion of a lamp. (Column 2 lines 3-8)

The motivation for coating selected portions of the lamp through masking is that it allows for manufacturing reflector type lamps. (Column 1 line 48)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Parham et al. by coating selected portions of lamp as taught by DeCaro et al. because it allows for manufacturing reflector type lamps.

Claims 30 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parham et al. '005 in view of Parham et al. '991 and Hoegler of as applied to claim 1 above, and further in view of Zhao et al. (U.S. Pat. 6,382,816).

The difference not yet discussed is that sputtering and heating to oxidize is not discussed.

Zhao et al. teach forming a protective film such as silicon oxide on a lamp. (See Abstract; Column 3 lines 46-47) The protective layer can be formed by sputtering. (Column 7 lines 15-16) The protective layer is heated such that oxygen from the air oxidizes the protective layer. (Column 7 lines 20-30)

The motivation for sputtering and heating to oxidize is that it allows for oxidizing the protective layer. (Column 7 lines 20-30)

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Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have sputtered and then heated to oxidize as taught by Zhao et al. because it allows for oxidizing the protective layer.

Claim 10 and 46-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parham et al. '005 in view of Parham et al. '991 and Hoegler as applied to claim 1 above, and further in view of Hollenbeck (U.S. Pat. 3,777,171) and Ternueu et al. (U.S. Pat. 5,221,352).

The differences not yet discussed is that the coating of the lamp before the step of cutting the burner envelopes is not discussed.

Hollenbeck '171 teach glass tubing drawn from a furnace. The elongated tube drawn from the glass furnace is cut into specific lengths. (Column 3 lines 18-28) Ternueu et al. suggest that it is better to coat the glass newly formed than after being pre-cut. (Column 2 lines 36-53)

The motivation for coating before cutting is that it allows processing of the glass in its most pristine condition. (Column 2 lines 44-45)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have by coated before cutting as taught by Hollenbeck and Ternueu et al. because it allows for processing of the glass in its most pristine condition.

Response to Arguments

Applicant's arguments filed 2-28-06 have been fully considered but they are not persuasive.

In response to the argument that there is no motivation to modify Parham '505 to a bulbous shape, it is argued that Hoegler et al. show that an elongated lamp can be made into a bulbous elliptical lamp. (See Hoegler et al. discussed above)

In response to the argument that the references do not teach protecting the coatings from heat sealing, it is argued that Parham et al. '991 teach protecting the coating from heat. Since the hermetic sealing requires heat Parham et al. '991 teaching of providing a protective coating to protect from heat would be needed. It should be noted that Applicant uses a coating to protect the coating. (See Parham et al. '991 discussed above)


In response to the argument that the references do not teach repositioning the filament for the lowest power to maintain the filament at a constant temperature, the Examiner argues that since Hollenbeck utilize the measurement of the electric field that such measurement is directly related to power and this allows the filament to be positioned at a reference point where the reference point could be the lowest applied power where the temperature would be constant. (See Hollenbeck '909 discussed above)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rodney G. McDonald whose telephone number is 571-272-1340. The examiner can normally be reached on M- Th with Every other Friday off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam X. Nguyen can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Rodney G. McDonald
Primary Examiner
Art Unit 1753

RM
April 12, 2006